with the architectural integrity of the Chrysler Building's design when viewed at eye level. Exhibit 2 at 2-3.

While Fidelio seeks to belittle its failure to comply with the FCC's environmental processing rules, the Commission cannot excuse it. Fidelio certified in its proposal that its application did not fall within Section 1.1307 of the Commission's Rules. This was false.[14/] Fidelio failed to provide the required EA with its application. This rendered the application defective. Fidelio's Opposition does not, nor could it, correct these fatal flaws.[15/]

III. CONCLUSION.

Fidelio may not be permitted under the FCC rules to file an untimely and unauthorized amendment to cure fundamental acceptability defects in its technical proposal. Thus, its application remains defective and must be returned. Even were the amendment accepted, Fidelio's proposal would remain in violation of several Commission rules. Furthermore, Fidelio

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14/ Given that Mr. Pei, who executed the application and made this certification, claims to be "familiar with and sensitive to the importance of historical preservation" (Opposition at 9), additional substantial and material issues of fact are raised as to whether Mr. Pei made a misrepresentation to the Commission in making this certification.

15/ Nor could Fidelio's untimely amendment. Emmy Hahn Limited Partnership, 67 RR 2d 263 (1989); Special Markets Media, Inc., 66 RR 2d 1250 (1989); PrimeMedia Broadcasting, Inc., 65 RR 2d 27 (1988).

has failed to justify its failure to submit an environmental assessment, as required by the Commission's rules, despite its proposal to locate on the historic landmark Chrysler Building. For this reason as well, Fidelio's application must be returned as unacceptable.

WHEREFORE, it is respectfully submitted that the Fidelio application must be denied and returned as unacceptable for filing.

Respectfully submitted,

GAF BROADCASTING COMPANY, INC.

John T. Scott, III

Crowell & Moring
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

Aaron I. Fleischman
Arthur H. Harding
Christopher G. Wood

Fleischman and Walsh, P.C.
1400 Sixteenth Street, N.W.
Suite 600
Washington, D.C. 20036

Date: February 20, 1992

EXHIBIT NO. 1

Technical Statement of Steven J. Crowley,
du Treil, Lundin & Rackley, Inc.

TECHNICAL STATEMENT
PREPARED FOR
GAF BROADCASTING COMPANY, INC.
RADIO STATION WNCN
NEW YORK, NEW YORK

Introduction

This Technical Statement has been prepared for GAF Broadcasting Company, Inc., licensee of WNCN(FM), New York, New York (WNCN), in support of WNCN's response to the Opposition of the Fidelio Group, Inc. (Fidelio) to Petition to Deny (Opposition).

RF Radiation and Coverage Issues

Fidelio correctly notes that by moving its proposed antenna away from populated areas of the building, the potential hazard to humans from exposure to radiofrequency radiation (RFR) would be somewhat reduced.[1]

Because of inconsistencies in the Opposition, however, the efficacy of RFR control measures cannot be determined. For example, T'ing C. Pei recounts his personal inspection of the new antenna site, and notes that there are "unwindowed steel surfaces with holes punched through, through which holes numerous transmitting antennas protrude."[2] Fidelio notes elsewhere that it will rely on the building's "steel shield" to "attenuate RF energy to a degree that the ANSI guideline will most

[1]Opposition at Paragraph 8.

[2]See Opposition, Attachment A at Paragraph 2.

likely be satisfied."[3] These statements are at odds; if the steel surface has holes in it, the holes would allow RFR energy to pass through to the interior of the building. Worse, depending on the geometry of the holes, they may be electrically resonant at Fidelio's proposed frequency. Such a phenomenon could create field strengths inside the Chrysler Building higher than would be the case if there was no metal shield at all, resulting in high RFR levels in the offices on the top floors of the building. Fidelio fails to address this serious engineering issue.

Another problem arises if the metal surface is relied upon to shield the interior of the building. It will likely reflect about half of Fidelio's signal upward at roughly a 45 degree angle. This is because about one-half the panels on the spire of the building are tilted upward by this amount. This will result in severe coverage losses. This reflecting effect also raises the potential for interference to aircraft communication and navigation systems as high radio-frequency energy will appear in unexpected areas. Fidelio does not indicate if it brought this issue to the attention of the Federal Aviation Administration, which is responsible for evaluating the potential for electromagnetic interference to aircraft.[4]

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[3]See Opposition, Attachment B at 5.

[4]Moreover, it appears Fidelio has not notified the FAA of its revised or even its original proposal using as justification the fact that the overall height of the Chrysler Building would not be increased by its proposal (See Fidelio's original and revised FCC Form 301, Question 5). While the Fidelio antenna may not be a mechanical obstruction, not notifying the FAA does not serve that

Fidelio notes that the "Commission has previously approved -- for installation on the Chrysler Building -- omnidirectional FM broadcast antennas designed with four elements (one mounted on each of the four faces of the Building) and with two elements."[5] The four element antenna -- for WCBS-FM -- was mounted on the upper portion of the spire that has a significantly reduced cross-section than the portion of the building Fidelio is proposing to mount its antennas. Even in that easier case, however, it was noted by CBS engineers that the antenna pattern suffered "deviations from circularity."[6] After 2 years of operation, WCBS-FM abandoned the Chrysler Building site and moved to the Empire State Building.

Fidelio also cites WTFM as a previous FM tenant of the Chrysler building. This station's pattern, however, was severely distorted from omnidirectional. Figures 1 and 2 are patterns of the horizontally and vertically, respectively, patterns of the WTFM antenna showing the extreme directionality. Figure 3 is a copy of a picture of the antenna mounted on a full-scale model of the finial of the Chrysler Building during testing at the antenna manufacturer. Judging by the ladder in the

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agency's interest in evaluating the interference potential to aircraft communications and navigation equipment. This is a concern because Fidelio is proposing a power level much higher than that used by WNCN.

[5]Opposition at Paragraph 15, n.6.

[6]See Engineering Statement Associated with Application for Construction Permit to Change Location, Install a New Transmitter and Antenna System for WCBS-FM New York, July 25, 1950 at 3.

foreground, the finial cross-section is about five feet. The cross section of the building for Fidelio's antenna is approximately 70 feet and is likely to produce greater distortion.

Fidelio correctly observes that "the phasing of multiple antenna elements to achieve an omnidirectional pattern is a thoroughly common practice."[7] Fidelio also notes that there are "numerous examples of such multiple element antenna systems" such as the one it is proposing.[8] This is true when the elements are numerous, close together, and on a structure having a relatively small diameter as is the case on the Empire State Building, but the proposal by Fidelio to mount multiple antennas on a building face as large as 70 feet is not "common practice" and is, in fact, unprecedented in broadcast engineering. Fidelio is proposing to mount its antenna not, like WTFM, on the finial of the Chrysler Building with elements a few feet apart (less than one electrical wavelength) but instead at a location on the building where the building's cross-section is substantially greater.

The only way an FM antenna can produce an omnidirectional pattern on a structure as large as the 70 foot face of the Chrysler Building is with elements no more than one wavelength apart, or about 9 feet. This means that each face of the building would require 8 elements at a minimum, for a total of 32 elements. Again,

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[7]See Opposition at 7, n.6.

[8]Opposition, Attachment B at 2.

this is a minimum; modeling would likely show that more elements are required to achieve a pattern without distortion.

Fidelio seeks to create a direct parallel with WNCN's use of a multi-element antenna on the Empire State Building.[9] Such an argument is without engineering merit. As indicated above, the Empire State Building antenna, which WNCN shares, is on a portion of the building having a much smaller cross-section than Fidelio's proposed location. The antenna also has several times the four elements that have been used on the Chrysler Building in the past. If Fidelio hangs a crown of 32 or more elements around the Chrysler building it may be able to achieve omnidirectional coverage. Such an antenna, however, would be visually obtrusive.

Since Fidelio will not be able to use such a novel antenna, it is probable that the Chrysler Building will cause severe distortion to its signal. This brings us again to Fidelio's regulatory dilemma as was outlined in WNCN's Petition to Deny. Obtaining at least 80 percent city coverage with the 3.16 mV/m (70 dBu) contour appears to be impossible because of Fidelio's reliance on processing under the provisions of Section 73.213(a)[10]. Those provisions require that the 1 mV/m field strength contour not be extended toward the 1 mV/m contour of any short spaced station. If a distorted pattern is applied

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[9]Opposition at 8, n.6.

[10]The Commission considers 80 percent city coverage

under those rules, the main lobes of the pattern are the only directions where 1 mV/m coverage can approach WNCN's. In the minima between those azimuths, coverage will fall well short of the maximum contour allowed pursuant to Section 73.213(a), which would appear to render Fidelio's compliance with Section 73.315(a) impossible. The only

sectional area and length similar to a land mobile whip antenna) to large, oddly shaped elements." "The Commission has not found a need to consider the environmental impact for any of the existing antennas mounted on the Chrysler Building." "The proposed FM antenna will not be substantially out of the character of either the existing antennas"[12] All untrue.

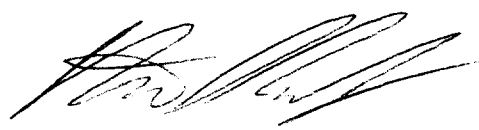
As far as the Commission has been concerned, the distinction between the antennas now on the Chrysler Building and the one Fidelio is proposing is clearly illustrated in its Rules. The antennas now in place are of the type used in the Private Land-Mobile Radio Services falling under Part 90 of the Commission's Rules. Services under that part are categorically excluded from environmental processing as related to human exposure to radiofrequency radiation because of the relatively safe levels of power with which they operate.[13] These low powers, which are fractions of that proposed by Fidelio, enable the antenna manufacturer to use smaller diameter conductors in the antenna, reducing their overall size. This greatly reduces their visual appearance compared with an FM antenna.

To illustrate, Figure 4 is a manufacturer's data sheet for a "whip" antenna of the type presently mounted on the Chrysler Building. The length of this antenna is

is a mechanical drawing of an antenna element of the type that may be used by Fidelio. It is a boxy configuration having a length of 55 inches, a width of 27 inches, and a height of 17 inches.[14] Fidelio is proposing to use <u>two</u> such elements, <u>at a minimum</u>, as a two-bay antenna for its facility. Typically, the elements in such an antenna are spaced one wavelength apart, or about nine feet. This is shown in Figure 6, a photograph of two elements of an FM antenna being installed; this picture is an example of what Fidelio might mount on the side of the Chrysler Building.

<u>Conclusion</u>

There are too many unknowns in Fidelio's proposal to be left to chance. They can only be resolved if Fidelio fully specifies just what kind of antenna it proposes to use. It is the only way the impact of the antenna can be evaluated in terms of coverage, human exposure to radiofrequency radiation, and aesthetics.



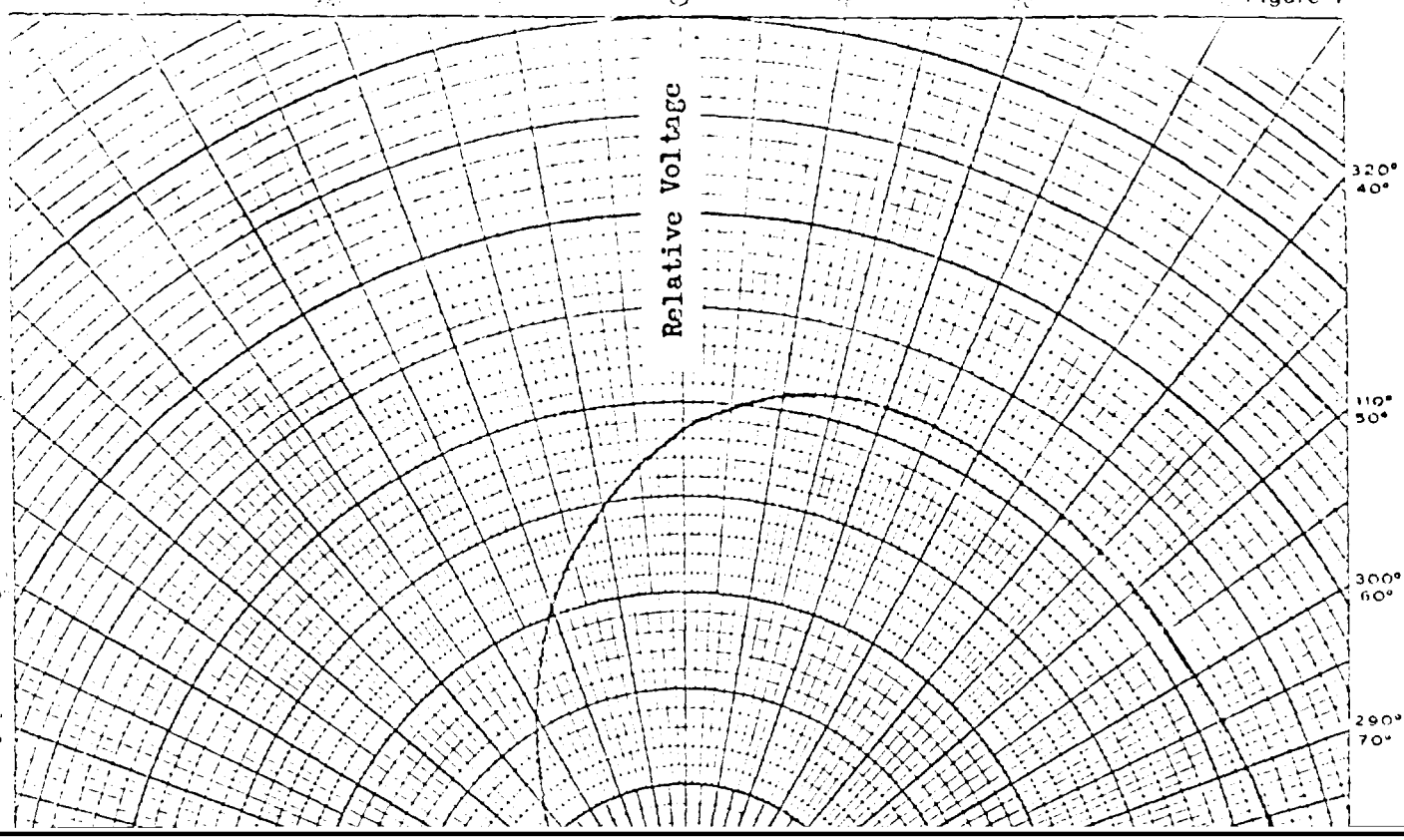
Steven J. Crowley, P.E.

du Treil, Lundin & Rackley, Inc.
1019 19th Street, N.W. 3rd Floor
Washington, D.C. 20036
(202) 223-6700

February 19, 1992

[14]These dimensions are approximate, but typical.

Figure 1



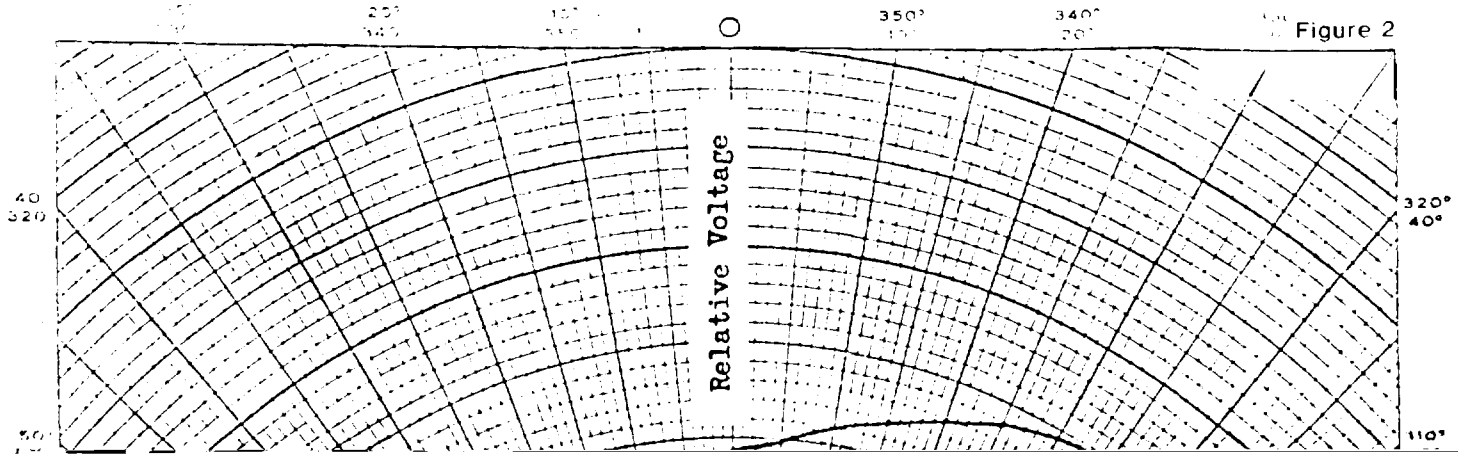
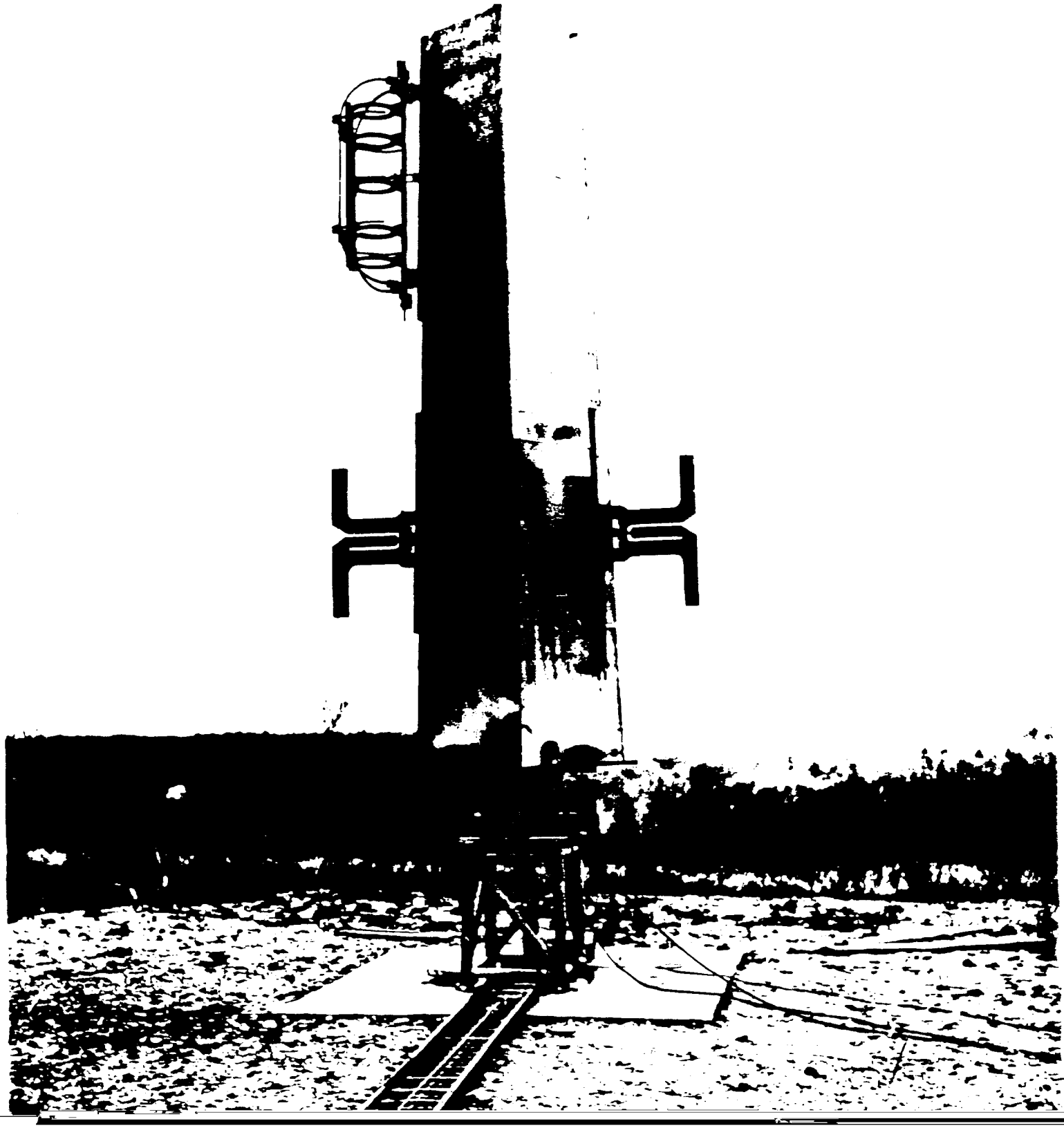


Figure 2

Figure 3

WTFM ANTENNA AT ALFORD MANUFACTURING CO TEST SITE



6.3 dBd GAIN

Figure 4

DB-416
450-470 MHz

FIBERGLASS ENCLOSED COLLINEAR ARRAY

MODEL DB-416 is a heavy duty, high gain, fiberglass enclosed antenna for use in the 450-470 MHz band. The use of a fiberglass radome and other corrosion resistant materials throughout makes this antenna highly resistant to deterioration and virtually eliminates the need for maintenance.

ELECTRICAL DESIGN. An end fed collinear array, the DB-416 includes the use of phase reversing coaxial radiators in a design which provides substantial gain, broad bandwidth and high power handling capability. The complete radiator assembly is sealed in a weatherproof polyvinyl jacket, then enclosed in the fiberglass radome for maximum protection from moisture and precipitation static. A DC path to ground is provided to minimize damage from lightning.

CONSTRUCTION. Tough and durable, the antenna will survive winds up to 125 mph. The fiberglass tube includes both longitudinal and spiral layers of glass fibers in its construction and is unusually strong. Furthermore, the flexing action of the tube resists ice build-up and the tapered shape reduces wind loading.

BANDWIDTH. Two models, each with a bandwidth of 10 MHz, cover the 450-470 MHz band. The broadband characteristics of this antenna make it ideally suited for duplex or repeater operation. In addition, this feature allows the antenna to be ordered in advance of frequency assignment.

TOP OR SIDE MOUNTING. The antenna is suitable for mounting to the top or on the side of a tower. Clamps for top mounting are supplied with the antenna but an additional side mount kit (Model DB-5007) must be ordered for side mounting. A typical radiation pattern for side mounting is shown in Figure 2.

Brass cap is permanently bonded to radome, grounded.

Glass sheath forms natural barrier to precipitation static.

Fiberglass radome will not corrode; withstands severe weather, saltwater, oil, most common chemicals, and fumes.

Captivated steel ground radials are folded against mast for handling, extended and locked in place for operation.

Heavy duty steel support pipe is corrosion protected; permanently bonded to radome.

Termination is Type N male with use of the flexible adaptor cable supplied with antenna, or Type N female when transmission line is connected directly to recessed connector.

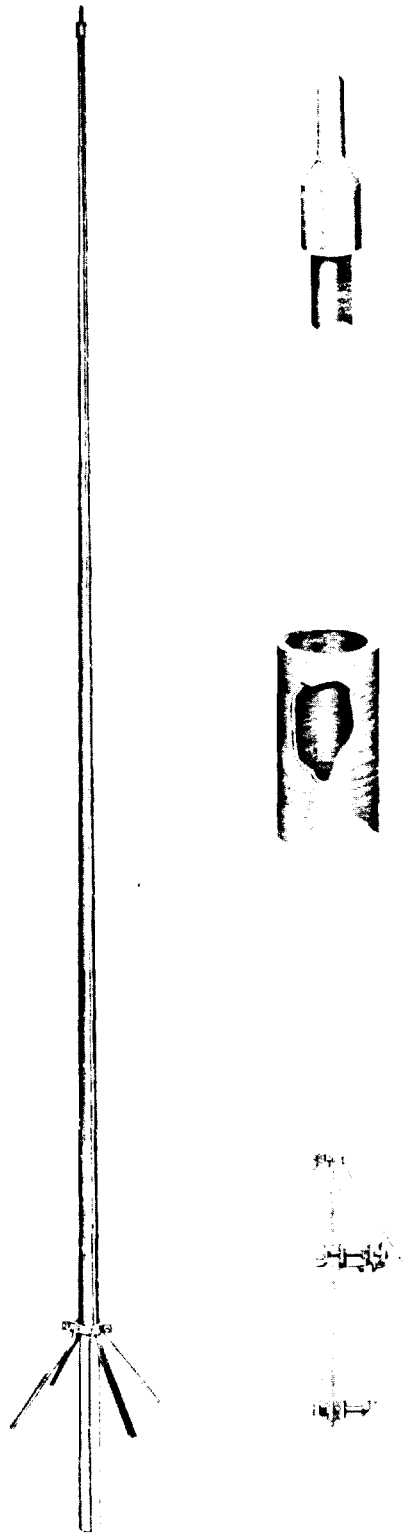


Figure 5

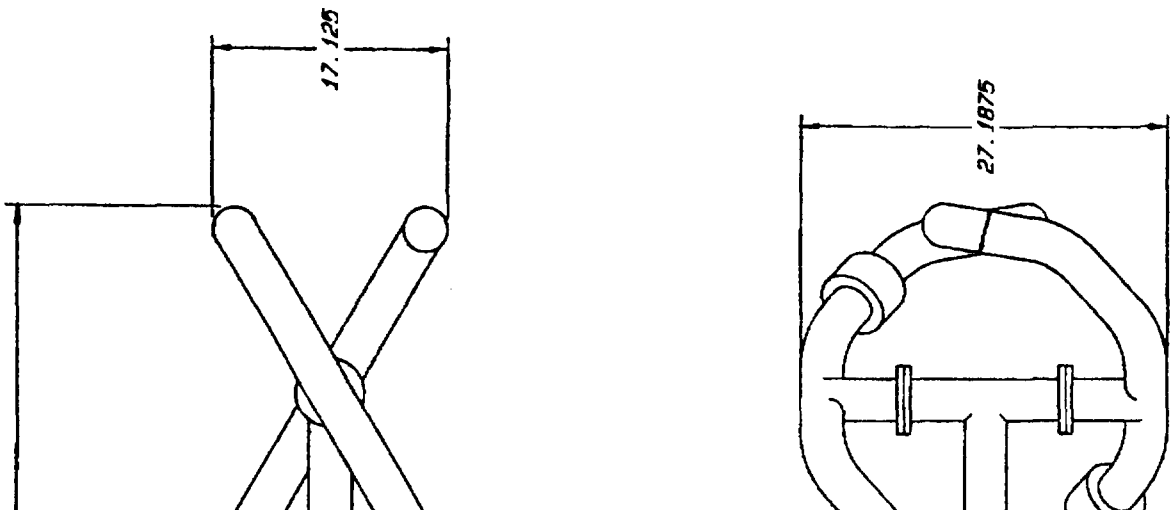
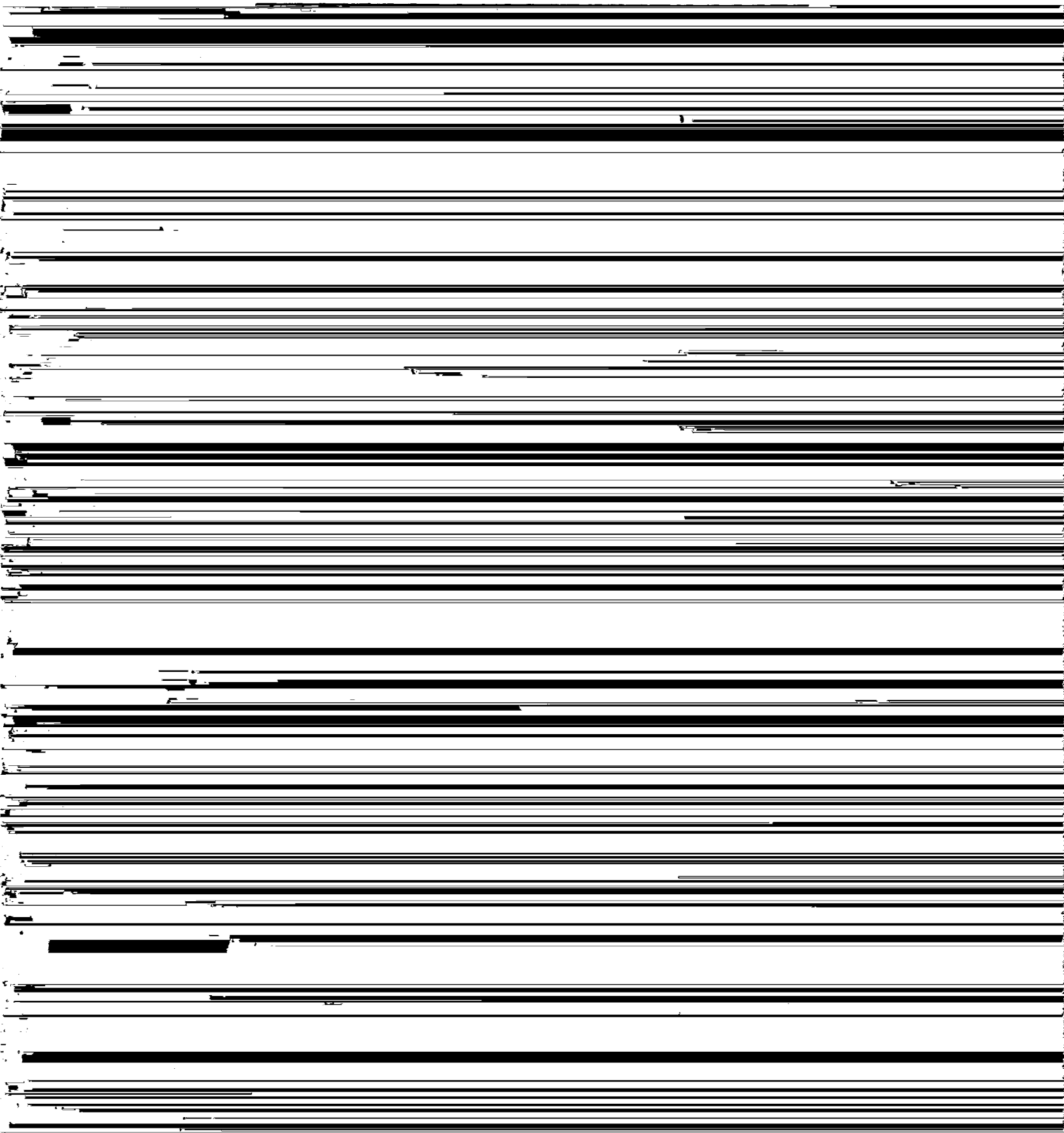


Figure 6



TECHNICAL STATEMENT
PREPARED FOR
GAF BROADCASTING COMPANY, INC.
RADIO STATION WNCN
NEW YORK, NEW YORK

Affidavit

CITY OF WASHINGTON)
) ss:
DISTRICT OF COLUMBIA)

Steven J. Crowley, being first duly sworn, states that he is employed by du Treil, Lundin & Rackley, Inc., A Subsidiary of A.D. Ring, P.C., Consulting Engineers, with offices in Washington, D.C.; that he is a graduate electrical engineer; that he is registered as a professional engineer in the District of Columbia (No. 8561); that he has 11 years experience in communications engineering and that his qualifications as an expert in radio matters are a matter of record with the Federal Communications Commission.

The foregoing statements are true and correct to the best of my knowledge and belief.

Steven J. Crowley, P.E.

Subscribed and sworn to before me this 19th day of February, 1992.

Elizabeth Raymond
Notary Public, Washington, D.C.

My commission expires August 31, 1994.

EXHIBIT NO. 2

Declaration of Rolf Ohlhausen, FAIA

DECLARATION OF
ROLF OHLHAUSEN

I, Rolf Ohlhausen, FAIA, hereby declare under penalty of perjury that the following is true and accurate to the best of my knowledge and belief:

1. I am a principal in the architectural firm of Prentice & Chan, Ohlhausen, located in New York City. I am registered with the National Council of Architectural Registration Boards in the states of New York, New Jersey, Pennsylvania and Connecticut. My resume, representative awards and exhibitions, and other pertinent background information are attached hereto as Exhibit 1.

2. My firm has had considerable experience in landmark preservation projects generally and specifically with projects requiring approval by the New York City Landmark Commission. Examples of such projects are as follows:

- **Astor Place Station, New York City, NY.**
  Historic replication and restoration of a NYC landmarked station for the Transit Authority. Designed by Hines and LaFarge.

- **Kent Hall, Columbia University**
  Restoration and renovation of a NYC landmarked building. Designed by McKim, Mead & White.

- **Brooklyn Museum, Brooklyn, NY.**

  Repair and restoration of the landmarked museum facade. Designed by McKim, Mead & White.

- **Skidmore House, 35 East 4th Street, New York City, NY.**

  Restoration of a NYC landmarked Greek Revival building.

- **Chrysler Building, New York City, NY.**

  Design and construction of a lobby lectern in the spirit of the original Art Deco Lobby.

3. In reliance upon information received from the radio consulting engineering firm of du Triel, Lundin & Rackley, Inc. regarding the typical dimensions of a two-bay FM broadcasting antenna of the type proposed by the Fidelio Group ("Fidelio") (FCC File No. BPH-910502MQ), I have prepared a scale drawing, attached hereto as Exhibit 2, to depict the appearance of mounting such an antenna on the face of the spire of the Chrysler Building. See Engineering Statement of Steve Crowley.

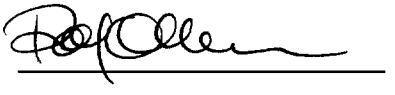
4. Based upon the available information, it is my opinion that an FM antenna in the location proposed by Fidelio is not similar in size or potential adverse esthetic impact to the private radio "whip" antennas presently mounted on the Chrysler Building.

5. The mounting of such an FM broadcasting antenna at the location proposed by Fidelio would, in my opinion, interfere with the graceful symmetry of the Chrysler Building

spire and would conflict with the architectural integrity of the Chrysler Building's design when viewed at eye level.

6. The impact of Fidelio's proposal at ground level is impossible to determine without actually installing a mock-up so it can be viewed from various street perspectives. However, in my opinion, the appearance of Fidelio's antenna from the ground alone should not be the only determinative of the question of whether Fidelio's proposal would conflict with the architectural integrity of the building.

7. The New York City Landmarks Commission has previously reviewed and denied a proposal to construct a pedestrian bridge between the Chrysler Building and an adjacent annex structure. The Landmarks Commission, in my opinion, will express great concern that the original character and integrity of the building will be maintained.



Rolf Ohlhausen, FAIA
Date: 2/19/92

PRENTICE & CHAN, OHLHAUSEN ARCHITECTS

ROLF OHLHAUSEN, FAIA
Partner

Born

1932, Schwetzingen, Germany

Education

The Cooper Union
School of Architecture
1954-1958

Harvard University
Graduate School of Design
Master of Architecture, 1959

Registration

National Council of Architectural Registration Boards

New York, New Jersey, Pennsylvania, Connecticut

Academic Activities

University of Oregon
School of Architecture
Assistant Professor, 1961-1963

Cornell College of Architecture
Design Critic, 1965-1968

Cornell College of Architecture
N.Y.C. Program in Urban Design
Director, 1968-1969

Columbia University
School of Architecture
Design Critic, 1971

University of Wisconsin
School of Architecture
Design Critic, 1978

City College of New York
School of Architecture
Adjunct Professor,
1979, 1982, 1984, 1987

Harvard University
Graduate School of Design
Design Critic, 1981

University of Pennsylvania
School of Architecture
Design Critic, 1986

Temple University
School of Engineering
and Architecture
Design Critic, 1990

Activities and Awards

Juror or Lecturer:
Claremont College, The Cooper Union, M.I.T., New Jersey Institute of Technology, Pratt Institute, Princeton University, Syracuse University

The Cooper Union
Schweinburg Award, 1959

President's Advisory Council on the Redevelopment of Pennsylvania Avenue
Washington, DC
Staff Architect, 1963

City of New York
Examiner in Urban Design
1972, 1974

AIA New York Chapter Member
Finance Committee, 1979-1980;
Nominations Committee, 1982;
Executive Committee Vice President, 1985-1986;
Jury for the Medal of Honor, 1989

The Cooper Union
Citation, 1980

The Cooper Union
St. Gaudens Medal, 1982

Young Women's Christian Association
Brooklyn, New York
Trustee, 1982, 1988

AIA
Fellow, 1984

Bard Awards
Juror 1980, 1988

AWARDS AND EXHIBITIONS

NYC AIA Award
Excellence in Design
Astor Place Subway Station
Renovation
New York, New York

City Club of New York Albert S. Bard Award for Excellence in Architecture and Urban Design
Astor Place Subway Station
Renovation
New York, New York

The Municipal Arts Society
Cultural Stations Exhibition
Astor Place Subway Station
Renovation
New York, New York

Harvard University
Graduate School of Design
Exhibition
Astor Place Subway Station
Renovation
New York, New York

NY State Association of Architects
Certificate of Merit for Excellence in Design
Arts for Living Center
New York, New York

Housing and Urban Development Seventh Biennial
HUD Awards for Design Excellence
Project Design Honor Award for Excellence in Design
Arts for Living Center
New York, New York

City Club of New York Albert S. Bard Award for Excellence in Architecture and Urban Design
Arts for Living Center
New York, New York

The Concrete Industry Board
New York Urban Amenities Award
Manhattan Station,
Roosevelt Island Tramway
New York, New York

AIA New York Chapter
Special Citation
Roosevelt Island Tramway,
New York, New York

City Club of New York Albert S Bard Special Honor in Architecture and Urban Design
Roosevelt Island Sports Park
New York, New York

Pratt Institute
School of Architecture
Exhibition
"75 Years of Drawing From Pen and Ink to CAD"

The Chinese Culture Institute of Boston
"East Meets West-Architecture as a Means of Bi-Cultural Communication"

Ski Magazine
Award for Environmental Development and Excellence in Design
First Place
Butternut Basin, Massachusetts

The Architectural League
"40 under 40" Exhibition
Conference Center

Architectural Record
Award of Excellence for Home Design
Peter F. McSpadden House
Greenwich, Connecticut

Columbia University
Young New York Architects' Exhibition

Architectural Record
Award of Excellence for Design of Interiors
Offices of Scali, McCabe, Sloves
New York, New York

Boston Architectural Center
Young New York Architects' Exhibition

Museum of Modern Art
"Another Chance for Housing" Exhibition
Arbor Hill Housing
Albany, New York
Twin Parks Housing
Bronx, New York

City Club of New York Albert S. Bard Award for Merit in Civic Architecture and Urban Design
Twin Parks Housing
Bronx, New York

Whitney Museum
"Another Chance for Cities"
Exhibition
Twin Parks Housing
Bronx, New York

New York State Association of Architects
Certificate of Merit for Excellence in Design
Administration Building,
Middletown State Hospital
Middletown, New York

AIA New York Chapter
Residential Design Award
Bar Seven Ranch Condominiums
Ennis, Montana

AIA New York Chapter WAA Citation
Brownstone Renovation in the West Side Urban Renewal Area,
New York, New York

PUBLICATIONS

The work of Prentice & Chan, Ohlhausen
has appeared in the following publications:

Newspapers

New York Times
New York Times Magazine
Christian Science Monitor
New York Daily News
New York Post
Village Voice

Architectural Magazines

Architectural Forum
Architectural Record
Progressive Architecture
Architecture & Urbanism (Tokyo)
Space Design (Tokyo)
Techniques & Architecture (Paris)
Lighting Design & Application
Architecture
S.E.G.D. Messages
Interiors
Baumeister (Munich)

General Magazines

House Beautiful
Fortune
New York Magazine
Vogue
Reader's Digest
Life
Ski Magazine